UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,692	09/18/2003	Kaixuan Mao	ARC-P126	1412

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/666,692	MAO ET AL.
	Examiner	Art Unit	
	Sean Motsinger	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _4/21/2007_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-22_ is/are pending in the application.

    4a) Of the above claim(s) _9-18, 21 and 22_ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-8, 19 and 20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _18 September 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Response to Applicants Arguments

1.   The election and amendment to the claims filed on 4/21/2007 have been entered

made of record. Applicant has elected group I drawn to indexing minimum coded

Units

2.   Examiner notes an error in the restriction mailed on 3/27/2007 with regard to

Claims 21 and 22. Examiner apologizes for this error and any problems or confusion

it may have caused. Claims 21 and 22 clearly should have been placed in group V

instead of group I. Claims 21 and 22 claim a data structure not addressed in any of

the claims in group I but is disclosed in the first element claim 15 of group V i.

Examiner must therefore correct the grouping of the claims to place claims 21-22 in

group V to avoid any future double patenting issues. Examiner will proceed with

applicants election of the subject matter in group I with the new claim grouping. The

restriction with the correct claim groupings is provided below

3.   Claims 9-18 and 21-22 are withdrawn from further consideration pursuant to 37

CFR 1.142(b), as being drawn to a nonelected subcombination, there being no

allowable generic or linking claim. Applicant timely traversed the restriction (election)

requirement in the reply filed on 4/21/2007.

4.   Applicant has argued that claims 9 and 10 are substantially similar to claims 3

and 4 and therefore it would not provide a burden to examine group I and II together.

While 3 and 4 and 9 and 10 are similar and broad enough to possibly be construed

read one on the other, the same is not true for claims 11-12 also in group II.

Furthermore while claims 3-4 and 9-10 are similar they are directed to substantially

different material one is directed to a method of building an index the other is

directed to a method of using an index to modify MCU's. To do a proper search for

the subject matter relevant to these claims is burdensome because this requires a

different search. Therefore the restriction between groups I and II is being

maintained.

Rejections Under 35 U.S.C 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject·to the
conditions and requirements of this title.

5.   Claims 19 and 20 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter. Claim 19 and 20 are directed to

a index of minimum coded units. They appear only to list data and not provide a

specific relationship amongst the data and are therefore non-functional descriptive

material. Futhermore even functional descriptive material such as a program or a

data structure must be claimed on a computer readable medium i.e. "A computer

readable medium encoded with ...."

6.   Note MPEP section 2106.01: "Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)(discussing patentable weight of data structure limitations in the context of a statutory claim to a data structure stored on a computer readable medium that increases computer efficiency) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory)."

Rejections Under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claims 1, 6-8, 19 and 20 are rejected under 35 U.S.C. 102(b) as being

anticipated by Ratnakar et al US 6,298,166.

8.   Re claim 1 Ratnakar discloses A method for indexing minimum coded units

(MCUs) in a Joint Photographic Expert Group (JPEG) bit stream, comprising:

entropy decoding a first minimum code unit (MCU) (note the bit offsets can only be

determined by entropy decoding the MCU preceding it) to determine a first bit offset

(column 12 line 55) of a second MCU from a start of the bit stream, wherein the first

MCU immediately precedes the second MCU in the bit stream (note the bit offset is

always dependent the preceding MCU's); and indexing (building a table column 12

lines 50-55) the second MCU by storing the first bit offset in an index (recorded

column 12 line 57) .

9.   Re claim 6 Ratnaker discloses A method for indexing minimum coded units

(MCUs) in a Joint Photographic Expert Group (JPEG) bit stream, comprising:

receiving a request for an ith MCU in the bit stream (column 8 lines 15-45 note this is

a table describing operation that need to be prefomed for operation also see column

9 lines 15-25 this amounts to requesting MCUs); determining if the ith MCU

precedes a last indexed MCU in the bit stream (note no MCU have been indexed so

it needs to be indexed column 19 lines 35-50), wherein the last indexed MCU is a

last MCU in the bit stream that has its bit offset from a start of the bit stream stored

in an index (note MCUs are indexed in this manner see column 12 line 56); and if

the ith MCU does not precede the last indexed MCU in the bit stream (if the table

does not yet exsist): entropy decoding a plurality of the MCUs up to and including

the ith MCU() in the bit stream to determine their corresponding bit offsets (column

12 line 56) from the start of the bit stream (column 12 lines 50-63 note that a table is

built for each MCU); and indexing the plurality of the MCUs by saving their

corresponding bit offsets in the index (building bit offset table column 12 line 53).

10.   Re claim 7 Ratnakar discloses said entropy decoding a plurality of the MCUs up

to and including the i.sup.th MCU in the bit stream further comprises determining a

plurality of DC coefficients of the plurality of the MCUs (column 9 lines 64-65 note

the DC terms are extracted); and said indexing the plurality of the MCUs further

comprises saving the plurality of DC coefficients in the index (note DC coefficients

are stored in the tables.

11.   Re claim 8 Ratnakar discloses reading the index to determine a bit offset of the

i.sup.th MCU (column 10 lines 5-6 note the tables are used); and entropy decoding

the i.sup.th MCU starting at the bit offset in the bit stream (column 10 lines 5-6note

the coefficients are extracted).

12.   Re claim 19 Ratnakar discloses an index (tables column 12 line 52) of minimum

coded units (MCUs) (column 12 line 53) in a Joint Photographic Expert Group

(JPEG) (column 12 line 29) bit stream, comprising a plurality of the MCUs (column

12 line 53) and a plurality of bit offsets (column 12 line 52) from a start of the bit

stream.

13.   Re claim 20 Ratnakar further discloses the index, further comprising a plurality of

corresponding DC coefficients (DC value column 12 line 56).

Rejections Under 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

14.   Claims 2, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ratnakar in view of Miller et al US 5,327,248.

15.   Re claim 2 Ratnakar discloses said entropy decoding a first MCU further

comprises determining a first DC coefficient of the first MCU (column 9 line 55 –65

note the DC values are found);

16.   Ratnakar does not disclose said indexing the second MCU further comprises

saving the first DC coefficient in the index. Ratnakar discloses storing the actual dc

value of the MCU in the index it does not disclose storing the DC value of the

previous MCU. At the time of the invention it would have been obvious to a person of

ordinary skill in the art to storing the DC value of the previous MCU (see Miller

column 6 lines 1-5). Since JPEG stores the DC value of the MCU in terms of the

previous MCU both option allow for decoding of a MCU without decoding the

previous MCU. Applicant has not disclosed that storing the DC value of the previous

MCU as opposed to the actual DC value provides an advantage, is used for a

particular purpose or solves a stated problem. One of ordinary skill in the art,

furthermore, would have expected Applicant's invention to perform equally well with

storing the DC value because both allow for decoding of the current MCU without

decoding the previous MCU. Therefore, it would have been obvious to combine to

one of ordinary skill in this art to modify Ratnakar with to obtain the invention as

specified in claim.

17.   Re claim 3 Ratnakar further discloses receiving a request for the second MCU

(Computing a particular MCU); reading the index to determine the first bit

offset(column 10 line 5) and the first DC coefficient (column 10 line 5); and entropy

decoding the second MCU starting at the first bit offset in the bit stream (extract

coefficients column 10 lines 5-6), wherein said entropy decoding comprises:

determining a second bit offset of a third MCU (extracting the coefficients will also

include determining the bit offset); and determining a second DC coefficient using

the first DC coefficient (extracting all the coefficients will include determining a DC

value).

18.   Re claim 4 Ratnakar and Miller discloses all of the elements in claim 3 Ratnakar

does not disclose indexing the third MCU by storing the second bit offset and the

second DC coefficient in the index. Miller discloses updating the index after an

editing operation. Miller discloses indexing the third MCU the second DC coefficient

in the index (column 7 lines 45-55). Miller also discloses updating the pointer

(column 5 line 13) this would suggest to one of ordinary skill updating the bit-offset

table after the editing operation. (note the bit offset table is what Ratnakar uses

instead of the pointer array.) The motivation to combine would be to update the

index after an editing operation (column 7 lines 45-55) and (column 5 line 13).

Therefore it would have been obviopus to one of ordinary skill in the art to combine

Ratnakar and Miller to reach the aforementioned advantage

19.   Re claim 5 Ratnakar discloses entropy decoding the second MCU to determine

(1) a second bit offset of a third MCU from a start of the bit stream (column 12 line

55)and (2) a second DC coefficient of the second MCU(column 9 line 55 –65 note

the DC values are found), wherein the second MCU immediately precedes the third

MCU in the bit stream (note the bit offsets can only be determined by entropy

decoding the MCU preceding it); indexing the third MCU by storing the second bit

offset (recorded column 12 line 57) in an index.

20.   Miller discloses indexing the third MCU by storing the second DC coefficient in an

index. (see rejection for claim 2 note each MCU is indexed with the DC value of the
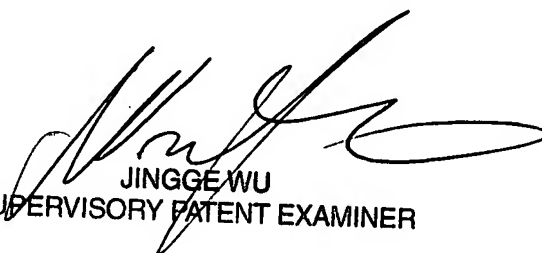
previous MCU)

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Sean Motsinger whose telephone number is 571-270-

1237. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jingge Wu can be reached on (571)272-7429. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the.

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published applications may be obtained from either Private PAIR or Public PAIR.

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Motsinger
6/5/2007

JINGGE WU
SUPERVISORY PATENT EXAMINER